

The Spanish International Engineering Program at the University of Rhode Island: Internships and exchanges

Seven years ago the Dean of the College of Engineering at the University of Rhode Island, Thomas Kim, organized a committee to look into the possibility of establishing a Spanish International Engineering Program that would replicate to some extent the very successful German International Engineering Program developed by Dr. John Grandin several years earlier. The need to establish such a program was clear. There was a growing trend in the world toward a global economy. Multinational corporations were replacing national corporations. New markets were opening up around the globe, particularly in Latin America with the establishment of free trade organizations such as Caricom, El Grupo Andino, NAFTA, Mercosur and the South American Free Trade Bloc. More than ever before, employers were seeking individuals who, not only had good technical skills, but who could speak other languages and had international experience. (>2)

There were, however, some formidable problems that had to be overcome. U.S. engineering programs were not preparing students for the international workplace. Stringent requirements in engineering curricula prevented students from taking a broader range of courses, particularly in the area of arts and letters. Many engineering faculty lacked international experience. (>3) Engineering employers in the U.S. were not articulating the need for graduates with international experience. Many students were bypassing language studies in the 12th grade. A number of Universities were eliminating or reducing language requirements for their students. (>4) Some engineering programs tried to combat this problem with what I like to refer to as "short-cut attempts", offering optional language immersion programs for their students during the summer months.

While the Hispanic population in the U.S. was growing at a dramatic rate, Hispanics were grossly underrepresented in such important fields as Engineering. In 1997 only 3.7% of engineering graduates in the United States were Hispanics. Retention rates of hispanics in engineering programs nationwide were abysmal. At the University of Rhode Island the graduation rate for Hispanic students in engineering was only 33%. (>5)

Thanks to a rather generous grant from the U.S. Department of Education's Fund for the Improvement of Postsecondary Education (FIPSE), the Spanish International Engineering Program at URI was launched in September of 1998. (>6) Today it is part of an internationally recognized program headed up by Executive Director, John Grandin, directors for each of the three programs (German, French, and Spanish), An Asst. Director for

Outreach and Administration, internal and external advisory boards, and two buildings on campus which house and provide meals for both American as well as international students. The slide you are looking at is an organizational chart of the IEP. (>7)

The IEP is dedicated to the promulgation of international engineering education. To be on the cutting-edge of engineering education and to prepare our students for careers in today's world, educators must understand the evolution of globalization and take proactive steps in preparing students for a different and more complex kind of work environment. (>8)

We want our students to meet world class educational standards in order to work more effectively with peers, partners, and competitors in any global location. We want them to develop life-long learning skills...to gain expertise in their field of specialization, but breadth and depth in other areas as well, especially in the area of cross-cultural communication. (>9)

We want them to be fluent in oral and written Spanish and to be familiar with at least one Hispanic culture (this, of course, means living in that culture for a minimum of 6 to 9 months). While we strive to attract high caliber students to the College of Engineering, we in the Spanish International Engineering Program, have made a special effort to recruit minority students, particularly Hispanics. (>10)

We will continue to recruit Hispanics and work to increase the retention rates of these students in the College of Engineering. We have and will continue to develop ties between the University of Rhode Island and universities and companies in Spain and Latin America as well as with local businesses. Through our relationships with these companies and universities we have set up a number of internship and exchange opportunities for our students. We have and will continue to secure external funding from corporations, foundations and other sources to ensure the continuation of the program. We believe in the program and will continue to promote it in hopes that other universities around the country will seek to replicate it. (>11)

The SIEP is a five-year dual-degree program. Students in the program earn a BA degree in Hispanic Studies as well as a BS degree in one of several engineering disciplines. All students do a six-month paid internship in Spain or Latin America, and most do an additional semester of study abroad at one of our partner universities. (>12) HOLD (>13)

In Spanish there are two separate tracks, one for students who are heritage speakers or have had four or five years of high school Spanish, and another for students with only two or three years of high school Spanish. Students coming into the program with no previous Spanish are told that they **MUST** do additional work in Spanish during the summer months. Those students in track A have the option of taking 6 credits of Portuguese and counting those credits toward their Spanish major. All students in the program are required to take all of the literature and culture courses that the normal Spanish major takes, with the exception of one less literature course at the 400 level. All students in the program must take, in addition to the normal course offerings, SPA 321, Spanish for Business and Technology, as well as a capstone course in engineering taught in Spanish. (>14)

Recruitment of students is one of our primary focus areas. Attending conferences and meetings, mailing out brochures and other information, developing a state of the art website, visiting high schools across the country, and using program alums in our recruitment efforts are just some of the recruitment techniques we employ. (>15)

We in the Spanish International Engineering Program are committed to seeking diversity, and as such, have been cited as one of the foremost diversity initiatives on the URI campus. Recently Texas Instruments selected URI as one of three universities in the northeast for recruitment of minorities. (>16)

The next two slides show some facts and figures. As you can see, currently there are 168 students in the IEP... 38 of these in Spanish. (>17)

Of the 38 students in Spanish 17 (or 45%) are Hispanics. In the College of Engineering only 5.3% of the student body is Hispanic. 19 (or 50%) of the students in Spanish are women. Only 16.5% of the students in the College of Engineering are women. (>18)

A few more facts and figures of interest... (>19)

Through the six-month professional internship abroad our students develop language skills in a native situation, develop important intercultural skills, and experience engineering in a different context. Students receive 6 language credits (they are expected to write biweekly resúmenes in Spanish about their experience) and a subsistence wage, which may vary from company to company. Internships, in many instances, lead to future job opportunities. (>20)

We have made company contacts through alumni, local contacts, personal contacts, our external board members, other established company connections, consulates, as well as service organizations or providers like CONAHEC. (>21)

Most of the financing of internships comes from the corporate partners themselves. Some companies contract the students directly (Texas Instruments). Others give us the funds and allow us to set up a foundation account to support internships (Praxair). But the majority of companies prefer working through our partner universities in the country in which they are conducting business (Hilti, Ansa). (>22)

Our first intern was Carlos Ramirez who is currently employed by Textron. (>23)

Three of our students have completed internships with Praxair, two with Hilti, and one with TRW. One of our students is currently interning with Texas Instruments in Aguascalientes, MX. (>24)

We have reciprocal exchange agreements with ITESM, principally the Toluca campus; the Centro Politecnico Superior of the University of Zaragoza, the Escuela Superior de Ingenieros Industriales of the Universidad de Navarra in San Sebastian, and the University of Valladolid. We have hosted groups of students from ITESM during the past three summers (these students were enrolled in courses taught either by our faculty or the ITESM faculty and visited local companies). In August we took a group of second year students on a study tour to Toluca where they visited the University, sat in on classes, and visited local companies. In April we will be hosting a group of ITESM students here at URI. In some cases, our partner Universities have helped place our students in internships. In exchange, URI professors have hired their students as research assistants in order for them to complete their "proyecto fin de carrera". We are trying to work out several faculty exchanges for the coming year. Next week, at our colloquium on international engineering education, I will be meeting with the Director of ITESM Toluca and an Industrial Engineering professor from Laval University in Quebec to discuss the possibility of offering a dual Masters program in engineering technology. (>25) and (>26)

SKIP (>27)

Recently the International Engineering Program at URI was cited by the US Department of education as a National Resource Center for

International Engineering Education. In addition to making presentations such as this at national or international conferences, we host an annual colloquium, build and maintain an active website and data base, visit other college campuses, host visitors from other universities and companies, and publish our work in educational and government journals. (>28)

Here are a few quotes from some people in the business world about their impressions of the IEP. (>29)

Our 5th Annual Colloquium will be held next weekend at the Crowne Plaza Hotel in Warwick, RI. More than 30 universities and several major international companies (BMW, Siemens, and TI) will be represented. If anyone is interested, it still may be possible to register. (>30)

Here is our website address for anyone who may be interested in finding out more about our program. Thank you. (>31)